

## Abstract

The object of the present invention is to provide a method of controlling a refrigeration cycle such that maximum refrigerating capacity can be educed when the refrigeration cycle is started, the driving torque of a variable displacement compressor can be reduced when an automotive vehicle performs standing start or acceleration, and the refrigeration cycle can be operated with the maximum efficiency in a steady operating condition.

Electric signals for control of a capacity control valve for controlling the capacity of a variable displacement compressor and an electronic expansion valve are directly measured, and the differential pressure between a high pressure-side refrigerant pressure and a low pressure-side refrigerant pressure in the refrigeration cycle and the flow rate of refrigerant flowing therethrough are estimated based on the electric signals, whereby the energy of the refrigeration cycle is estimated, and further by using an engine rotational speed, the driving torque of the variable displacement compressor is estimated. This makes it possible to carry out energy control for as maximum refrigerating capacity operation, maximum efficiency operation, required minimum refrigerating capacity operation, and so forth, whereby it is possible to carry out not only fuel consumption saving operation but also energy control for reducing burden on the engine e.g. during idling and acceleration of the

engine.